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Review of *Spiders of North America*, by Sarah Rose

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Spiders of North America, by Sarah Rose. 2022. Princeton University Press, Princeton, New Jersey, USA, and Oxford, United Kingdom. 611 pages + xii. \$35.00 (softcover). ISBN: 978-0-691-17561-4 (softcover) and 978-0-691-23706-0 (eBook).

A field guide to spiders, the dominant terrestrial predator group, has long been a desire for North American naturalists, biologists, and spider fans, but not surprisingly, the first “real” field guide has been a long time coming. The diversity of spiders, with over 50,000 known species globally (World Spider Catalog 2022) and around 4,000 in North America north of Mexico (Rose 2022), is well beyond the diversity of more traditional field guide targets such as birds (about 1,000 species north of Mexico; American Birding Association 2022) or butterflies (about 725 species north of Mexico; North American Butterfly Association 2022). Also, spiders are often difficult to separate (even to family, let alone to species) by the usual “photographic” traits of body shape and coloration that are so successfully relied on for birds and butterflies. Finally, the average body size of spiders is less than 5 mm (Roff 1991), so many spider species remain quite challenging to photograph or to observe adequately with the naked eye. Past solutions to these difficulties usually involved smaller geographic areas than North America, and they often concentrated on commonly encountered and larger, conspicuous taxa. Spider enthusiasts without microscopes have relied on more modest guides such as *Spiders of the Carolinas* (Gaddy 2009) with “100 of our most common species” or *Spiders of the North Woods* (Weber 2013) with “135 of our northern species.” Dr. Sarah Rose succeeds in being a lot more comprehensive in her approach to the *Spiders of North America*, and while there certainly are not 4,000 species differentiated in this 611-page field guide, the arachnological community has reason to be both excited and proud of this arachnological landmark, which covers more than 500 species. It is indeed a legitimate continent-scale field guide, although not all the problems of dealing with this difficult group have yet been adequately solved.

Rose’s field guide has many useful features, and much to commend it. Importantly, although this book has a single author, she made sure it is an impressively collaborative effort. Photo credits include many of the continent’s premier small-animal nature photographers, and a significant cross section of the membership of the American Arachnological Society is acknowledged for identification confirmations and other types of assistance. I predict that going forward, all the top field guides will be substantially products of communities of naturalists rather than one individual expert, and Sarah Rose has been a pioneer of this modern approach.

Rose has a knack for predicting which spider families are the most likely to be confused with each described family. She provides range maps that for the first time make it possible



to compare ranges of many species at a glance. Rose is careful to describe and illustrate important morphological characters, and her creative use of colors to delineate morphological traits such as the different eyes of spiders will be very useful to learners. Most species are richly photographed, and there is a helpful emphasis on variation that might be encountered in the field. If anything, there might arguably be too many photos per species (up to seven, in the case of *Callobius bennetti* Blackwell), with the result that the average size of the photos is maybe a little too small to easily see some of the distinguishing features.

Ultimately, this field guide may prove to be difficult for inexperienced users to navigate, due to two major problems which are the result of both the difficulties inherent in identifying spiders, and of expectations that readers seem to have for documents called “field guides.” The first problem concerns how to narrow down the vast diversity of spiders to a few likely candidates without relying on a microscope. Previous field guides solved this problem by ignoring or at least downplaying many rarely collected or otherwise obscure spider families, leaving only a relatively small number of diverse families that are often (as in the case of the familiar jumping spiders, wolf spiders, crab spiders, and orb-weavers) fairly readily distinguishable. But Rose set out to provide a guide to every single known spider family in North America north of Mexico, which includes many families that are, frankly, difficult to separate. The solution attempted here is to place the 71 spider families into eight “guilds” each comprising 3 to 13 spider families sharing not morphological traits, but similar modes of catching prey. In general, though, arachnologists usually know which guild a spider belongs to by first determining which family it is in, not the other way around. In any case, it can be difficult to determine what guild a spider is in if you don’t happen to see a web that it made, and the large number of spiders that don’t produce webs are inherently difficult to place into guilds without a lot of additional information and observations. For example, many members of the “ground active hunter guild” can often be found off the ground in vegetation, and members of the “other active hunter guild” can likewise commonly be found running on the ground. The other result of this system is that very similar-looking spider families are often scattered as if randomly through the book rather than being placed near one another. Although individual species are often well-illustrated, getting to the right group of species might be difficult without a lot of page-turning. Unfortunately, I’m unaware of a great solution to this problem that avoids the use of a microscope.

The other major problem that I foresee with Rose’s guide stems from common expectations of field guide users: with field guides, we tend to assume it should be possible to identify organisms to the species level, and without reliance on special technology such as a microscope. Rose has certainly gone to great trouble to meet this expectation, but I think the result may mislead users into thinking that such species-level determination is easier to achieve than it really is. One feature of this field guide is that spiders are always identified all the way to the species level, even when the species is part of a genus whose members cannot, in fact, be reliably distinguished using the field guide. The extreme example involves the most diverse spider family in the region, Linyphiidae, which contains about 900 North American species in 173 genera (Rose 2022), but only 26 species in 21 genera are included in the guide. Yet, each photographed spider is described to species, even though the species’ descriptions would often also apply to a number of other species not included in the guide. No doubt many of the linyphiids that a user may run across will simply not be identifiable past the family level using the guide. But this kind of shortcoming occurs throughout: three of 12 *Myrmekiaphila* species (family Euctenizidae) are photographed, described, and mapped, but all of this information is insufficient to place *any* given *Myrmekiaphila* specimen you might encounter into any of these species. Importantly, Rose often notes the difficulty of distinguishing species

without a microscope, but it seems that the unvarying use of the species-level approach is bound to tempt users to “over-identify” taxa. I think it might be more appropriate to identify some groups in a spider field guide only to family or genus, and then perhaps include a “microscope icon” indicating cases when more magnification and other taxonomic resources are needed for species-level identification.*

These problems will undoubtedly be wrestled with by arachnologists far into the future, but the fact remains that Rose’s field guide is a great help for those wondering what spiders they are encountering in the field. This field guide is clearly aimed at naturalists who are not spider specialists, but it will certainly be useful to arachnological specialists in several ways, including as an aid to identifying unfamiliar families, as a photo atlas and compendium of common species, and to emphasize guild relationships and ecological and biogeographic data among taxa. I’m glad to have a copy, and I definitely recommend it to anyone interested in North American spiders.

*Thank you to my colleague Dr. Marc A. Milne, University of Indianapolis (pers. comm.), for this helpful idea.

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